

**REMARKS/ARGUMENTS**

Claims 1-4, 6-13, 15 and 16 have been examined. Claims 1, 4, 6, 10, 13 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 5,959,760 to Yamada et al. ("Yamada"). Claims 1, 4, 10 and 13 stand rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,469,821 to Bartlett et al. ("Bartlett"). Claims 2, 3, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada and US Patent No. 6,595,055 to Schenk et al. ("Schenk"). Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada and US Patent No. 5,908,986 to Mitamura ("Mitamura"). Claims 9 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada. Claims 17-20 and 22 have been cancelled. Thus, claims 1-4, 6-13, 15, 16, and 23-26 are now pending, although claims 23-26 were withdrawn by the Office.

**1. Claims:** Independent claims 1 and 10 have been amended to recite that upon activation the first and second tiltable assemblies *become* interdigitated. Support for the amendment is provided in the parent Application, "MEMS-BASED NONCONTACTING FREE-SPACE OPTICAL SWITCH," filed July 3, 2001, (*see, e.g.*, Application p.11, ll. 7-16; Fig. 6B).

It is respectfully believed that neither Yamada or Bartlett teach or suggest that "upon activation ... the first and second tiltable assemblies *become* interdigitated" (emphasis added). Claims 1 and 10 require that first and second electrodes are used to tilt first and second tiltable assemblies, such that upon activation, the assemblies become interdigitated. The Office cites Yamada and Bartlett to disclose "tilt able platforms" that are "interdigital." However, platforms in Yamada and Bartlett rotate *away* from the other upon activation, instead of rotating to *become interdigitated*.

### **A. Yamada and Bartlett Interdigitation**

Yamada discloses interdigital platforms with "rotation axes that are orthogonal to each other" (Yamada Patent, Col. 9, ll. 38-39). A first tiltable platform 2 and a second tiltable platform 11 are depicted in Fig. 12A and 12B of the Yamada Patent (*Id.*, Figs. 12A and 12B). Before activation, the platforms are interdigital. However, when voltage is applied to the applicable electrodes 15a and 15b, platform 2 rotates away from platform 11, and thus with activation the platforms are no longer interdigital (*Id.*, Col. 10, ll. 14-17, Figs. 12A and 12B; *see also* Col. 5, ll. 52-64, Figs. 3B, 3C, 3F and 3G). Only when the application of voltage is *stopped* will the torsion force of the torsion bars cause the platforms to become interdigitated.

Bartlett discloses an array of platforms (micromirrors) with "interlocking ... saw teeth" (Bartlett Patent, Col. 7, ll. 10-23). The design is depicted in Figure 8 of the Bartlett Patent (*Id.*, Fig. 8; *see also* Fig. 1). Before activation, the platforms are "interlocked." However, when voltage is applied to the applicable electrodes 110, the platform 102/802 rotates, and thus with activation the platforms are no longer "interlocked" (*Id.*, Col. 5, ll. 8-11, Figs. 1 and 8; *see also* Col. 6, ll. 44-47, Fig. 5). Again, only when the application of voltage is *stopped* will the torsion force of the torsion beams cause the platforms to become "interlocked."

### **B. Interdigitation in the Claims of the Present Application**

Claims 1 and 10 were amended to clarify that upon activation, the first and second assemblies must *become* interdigitated. Specifically, claims 1 and 10 provide for "first and second electrodes" positioned to "tilt first and second tiltable assemblies," and that upon activation the "assemblies become interdigitated." An enabling disclosure of one embodiment of the present invention is presented in the Specification of the parent Application, "MEMS-BASED NONCONTACTING FREE-SPACE OPTICAL SWITCH," filed July 3, 2001 (*see, e.g.*, Application p.10, l. 24 - p. 11, l. 17; Figs. 6B and 6C). Specifically, it illustrates how when the electrodes are activated, the fingers of two assemblies *become* interdigitated.

**2. Restriction:** In accordance with the finality of the restriction requirement, the claims of Group II, claims 17-20 and 22, have been cancelled. The claims of Group III, claims 23-26, have been amended to correspond more clearly to claims 1-4. As amended, claims 23-26 correspond to claims 1-4 written as means plus function claims in accordance with 35 U.S.C. 112, sixth paragraph. Thus, all of the claims in Groups I and III have the common feature that they are directed to a microstructure with two tiltable means that become interdigitated upon activation.

In light of the amendments to claims 23-26, and the foregoing argument, applicants respectfully request rejoinder of the claims of Groups I and III.

**3. Information Disclosure Statement:** The article, "Electrostatically Balanced Comb Drive for Controlled Levitation" by Tang et al, is attached. The Office indicated that the article was not found in the parent application, and therefore was not able to be considered initially.

The reference was identified in the Information Disclosure Statement submitted with the parent application on August 8, 2001, and the Examiner Connelly-Cushwa noted with her initials on September 15, 2003 that she considered the reference in the parent. Thus, it is respectfully believed that no supplemental IDS or fee is required pursuant to 37 C.F.R. § 1.97(c). The Examiner is requested to return a copy of PTO form PTO/SB/08b initialed to confirm consideration of the reference.

Should the Office disagree and determine that a fee is due, it is authorized to charge the appropriate fee to undersigned's Deposit Account No. 20-1430.

**4. Title:** As requested, the title has been amended to be more indicative of the claims.

**CONCLUSION**

Claims 2-4, 6-9, 11-13, 15 and 16 each recite limitations in addition to those in independent claims 1 and 10. These claims are believed allowable for at least the same reasons as given above. In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,



Michael L. Drapkin  
Reg. No. 55,127

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TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, Eighth Floor  
San Francisco, CA 94111-3834  
Tel: 303-571-4000  
Fax: 415-576-0300  
Attachment  
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